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STATISTICAL BULLETIN
Metropolitan Life Insurance Co.

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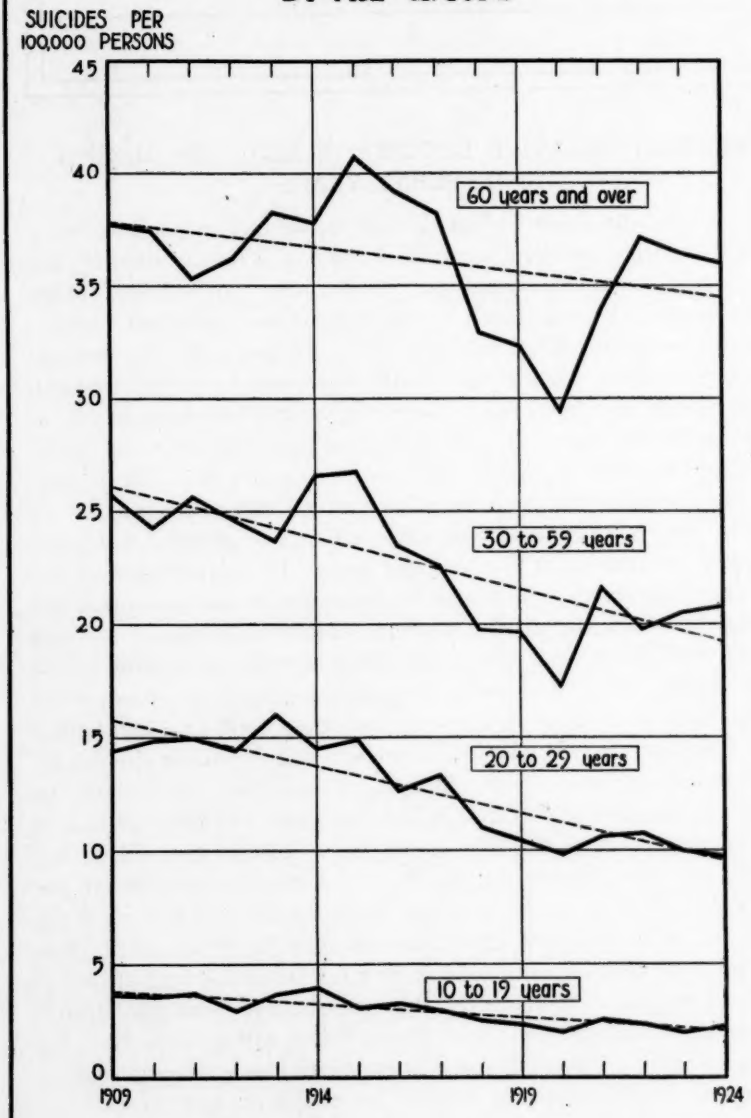
GREATEST RELATIVE DECLINE IN SUICIDES DURING ADOLESCENT YEARS

In the February issue of the BULLETIN we had occasion to bring forward evidence to allay a certain feeling of alarm aroused by the then recent press comments on the frequency of suicide among young people. It was shown in the data of the Industrial Department of the Metropolitan Life Insurance Company that the general tendency of these suicides, in youth, was downward, not upward, as the public had been led to fear. Some further data, based on statistics for the ten Original Registration States, have in the meanwhile been worked up, which point in the same direction. The deathrate from suicide has been decreasing at all ages; but the rate of decrease has been different for the various age groups, and more favorable, relatively, at the younger ages. The significance of the differences observed is best seen by reference to the accompanying diagram in which the deathrates from suicide in the period of years 1909 to 1924 have been plotted separately for the age groups 10–19, 20–29, 30–59, and 60 and over. Straight line trends have been fitted by the method of least squares to the series 1909 to 1924, earlier years being omitted because of the obvious deficiencies in the reporting of suicides prior to 1909. The trend lines thus fitted show the following characteristic: If they are extended to meet the line of zero deathrate, then the first trend line to reach this level is that for the youngest age group, 10–19. This runs to zero about the year 1941. The trend for the age group 20–29 does not meet the zero level until 1946, the trend line for ages 30–59 not until 1966, and the trend line for ages 60 and over not until the year 2078. It is not, of course, to be expected that present day downward trends will continue indefinitely. No doubt there will always be *some* deaths by suicide. But the trend lines exhibited are characteristic of the *present* tendency; and it is clear that the showing is most favor-

Declining Mortality from Suicide

10 ORIGINAL REGISTRATION STATES, 1909-1924 BY AGE GROUPS



able for the youngest age group, and that less and less rapid improvement, in relative proportion, is shown as we ascend the age scale. This is the opposite of what recent newspaper discussions would have led us to expect. The conclusion seems to be that suicide among the older persons is occasioned by stresses of a more fundamental and irremediable character than in the case of younger persons, and, hence, is less amenable to reduction. Suicide, in youth, is no doubt committed in many instances under provocation that, on reflection, would appear insufficient even to the victim.

Absolute and Relative Decline in Deathrates per 100,000 Persons from Suicide—All Forms

Ten Original Registration States. 1909-1924

Age Period	Annual Decrement	Mean Deathrate for Period	Annual Decrement as Per Cent. of Mean
All ages	.261	14.08	1.85
60 and over	.224	36.16	.62
30–59	.464	22.64	2.05
20–29	.422	12.63	3.34
10–19	.117	2.88	4.06

THE VALUE OF AN IMPAIRED LIFE (Continued)

In the June number of the STATISTICAL BULLETIN we considered the value of an impaired life. Figures were presented applicable to the case of impaired persons when there is reduced earning capacity, but no material diminution in the expectation of life, so that the normal life table could with propriety be used. In this instalment we propose to carry this discussion one step further, namely, to consider groups of impaired lives which have diminished longevity, as well as diminished earning power, as the result of their impairment.

For this purpose we have carried out computations on the basis of three separate life tables which may be said to correspond roughly to three mortality classes, namely, (1) persons whose impairments result in an increase of mortality from thirty to fifty per cent. above the general average; (2) those with a mortality fifty to one hundred per cent. above average; and (3) those one hundred to one hundred and fifty per cent. above average. As illustrations of the kind of

impairments representing these three classes may be mentioned, for the 30–50 per cent. excess mortality class, persons who have suffered a paralysis of one or more limbs; for the 50–100 per cent. excess mortality class, persons with moderate impairments of the heart; for the 100–150 per cent. excess class, those who have incipient or moderately advanced tuberculosis.

It must be clearly understood that we do not pretend here to place an exact mortality evaluation on various types of impairments. This would carry us far beyond our present knowledge in many cases. It is true, nevertheless, that life insurance companies have for many years insured persons with various impairments and have thus created an experience which can be utilized to make a rough classification of various impairments as regards the ensuing longevity. It is for this reason that we have felt justified in building up a system of life values according to the Tables I, II, and III on page 5.

Because of the broad mortality grouping we have adopted, the tables leave ample margin between the limits indicated, so as to include a great variety of impairments within each class. We cannot hope for more sharply defined accuracy, but in cases of this kind even a rough approximation is acceptable, because there is great need for estimates of the economic values of persons in the several classifications. As in our previous number, we have made our computations for persons having suffered an impairment resulting in a reduced income, and, as before, we have calculated values for the income classes $500, $1,000, and $1,500, assuming always that these individuals, if normal, would be in the $2,500 maximum income class. Under each of the income classes three colums are shown, the first corresponding to the case of total incapacitation, that is, where the injured or sick person's chance of obtaining employment is zero; second, where the chance is fifty per cent., and, third, where there has been no reduction of normal chances of employment. We present herewith these tables showing for each of the three mortality classes the corresponding money value of the wage-earner (the present worth of his net future earnings) on the assumptions as stated.

Like the table presented in June, the present tables show, for the most part, negative values. As was then pointed out, this is due to the fact that many of the persons in these classes fail to be self-supporting and thus become an economic liability instead of an asset. But there is another feature brought out in the new tables, which requires explanation. For the value at age eighteen, for example, of a man reduced to a wage of $1,000 per annum, and with fifty per

Net Present Worth in Dollars of Future Earnings* of Men in Specified Income and Mortality Classes

Mortality Table	Age	Income Class $500			Income Class $1,000			Income Class $1,500		
		Employed as Per Cent. of "Normal"			Employed as Per Cent. of "Normal"			Employed as Per Cent. of "Normal"		
		0	50	100	0	50	100	0	50	100
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	18	-9,400	-4,600	100	-9,400	100	9,600	-9,400	4,900	19,100
	20	-9,200	-4,500	200	-9,200	200	9,700	-9,200	5,000	19,100
I	25	-8,800	-4,200	300	-8,800	300	9,400	-8,800	4,900	18,600
	30	-8,300	-4,000	300	-8,300	300	8,800	-8,300	4,500	17,400
30-50	35	-7,700	-3,800	100	-7,700	100	8,000	-7,700	4,100	15,900
Per Cent.	40	-7,100	-3,600	0	-7,100	0	7,000	-7,100	3,500	14,100
Excess	45	-6,500	-3,300	- 200	-6,500	- 200	6,000	-6,500	2,900	12,200
Mortality	50	-5,700	-3,100	- 400	-5,700	- 400	4,800	-5,700	2,200	10,100
	55	-5,000	-2,800	- 700	-5,000	- 700	3,500	-5,000	1,400	7,800
	60	-4,200	-2,600	-1,000	-4,200	-1,000	2,100	-4,200	500	5,300
	65	-3,400	-2,400	-1,300	-3,400	-1,300	700	-3,400	- 300	2,800
	70	-2,700	-2,200	-1,700	-2,700	-1,700	- 600	-2,700	-1,100	500
	18	-9,000	-4,400	200	-9,000	200	9,300	-9,000	4,700	18,500
	20	-8,800	-4,300	300	-8,800	300	9,400	-8,800	4,800	18,500
II	25	-8,400	-4,000	400	-8,400	400	9,100	-8,400	4,800	17,900
50-100	30	-7,900	-3,800	300	-7,900	300	8,500	-7,900	4,400	16,800
Per Cent.	35	-7,300	-3,500	200	-7,300	200	7,700	-7,300	4,000	15,300
Excess	40	-6,700	-3,300	100	-6,700	100	6,800	-6,700	3,400	13,500
Mortality	45	-6,000	-3,000	- 100	-6,000	- 100	5,800	-6,000	2,900	11,700
	50	-5,200	-2,800	- 300	-5,200	- 300	4,700	-5,200	2,200	9,600
	55	-4,500	-2,500	- 500	-4,500	- 500	3,500	-4,500	1,500	7,400
	60	-3,700	-2,300	- 800	-3,700	- 800	2,200	-3,700	700	5,100
	65	-3,000	-2,000	-1,100	-3,000	-1,100	900	-3,000	- 100	2,800
	70	-2,300	-1,800	-1,300	-2,300	-1,300	- 300	-2,300	- 800	700
	18	-8,500	-4,200	200	-8,500	200	8,900	-8,500	4,500	17,600
III	20	-8,300	-4,000	300	-8,300	300	8,900	-8,300	4,600	17,600
100-150	25	-7,900	-3,800	400	-7,900	400	8,700	-7,900	4,600	17,100
Per Cent.	30	-7,400	-3,500	400	-7,400	400	8,100	-7,400	4,200	15,900
Excess	35	-6,800	-3,300	300	-6,800	300	7,300	-6,800	3,800	14,400
Mortality	40	-6,100	-3,000	100	-6,100	100	6,400	-6,100	3,300	12,700
	45	-5,500	-2,700	0	-5,500	0	5,500	-5,500	2,700	11,000
	50	-4,700	-2,500	- 200	-4,700	- 200	4,400	-4,700	2,100	8,900
	55	-4,000	-2,200	- 400	-4,000	- 400	3,300	-4,000	1,400	6,900
	60	-3,300	-2,000	- 600	-3,300	- 600	2,100	-3,300	700	4,700
	65	-2,500	-1,700	- 800	-2,500	- 800	900	-2,500	0	2,500
	70	-1,900	-1,500	-1,100	-1,900	-1,100	- 300	-1,900	- 700	600

*Discount rate adopted in the computation of this table is 3½ per cent. per annum.

cent. chance of employment, we find $100 according to the most favorable life table, the one applicable to cases classed as having 30–50 per cent. excess mortality. But according to the third and least favorable table, applicable in cases classed as having 100–150 per cent. excess mortality, his value is actually greater, namely, $200. This is because the shortened life, in accordance with the higher mortality, also shortens the period of inadequate earnings at the later ages of life, the period during which a man in this class is, on an average, an economic liability, a dependent upon his more robust fellows.

We may conclude, as we did in June, with an illustration showing how the table can be applied. Supposing a man, originally of the $2,500 maximum income class, is injured, at age thirty, to such an extent that his income is reduced to the earning level of $1,000 a year, and at the same time his chance of obtaining employment is reduced to fifty per cent. of normal and he is so injured that he falls into the 100–150 per cent. excess mortality class. We then consult the third section of the table in the income class $1,000 and "Employment Fifty Per Cent. of Normal" in the line corresponding to age thirty, and we find there the figure of $400. Before injury his value, at age thirty, was $31,038 according to the schedules previously published. Thus his value has been reduced by $31,038 minus $400=$30,638, or in a round figure by $30,600.

Or, to take a second example, if a man at age forty is totally incapacitated, that is, his chance of employment is reduced to zero, and if he falls into the 50–100 per cent. excess mortality class, then we find in the table by the same process as before the value minus $6,700. The economic loss in this case then is given by his original value at age forty which was $25,795, minus his remaining value which itself is a minus quantity, namely, $6,700. Thus the loss is greater by $6,700 than if his value had just been reduced to zero. Clearly, then, the loss is obtained by adding together the amounts $6,700 and $25,795, giving as the resultant loss $32,495.

All this is in accord with the modern tendency in the adjudication of awards of compensation for injuries, which inclines toward the principle that such awards shall not be estimated on a punitive basis; nor shall there be any attempt to indemnify for physical and other suffering that may have been incurred. The compensation is to be essentially for economic losses suffered by the person injured or by his dependents. Whether this principle be altogether sound, or how far it may be followed in actual practice with juries swayed by

varying sentiment, need not here be discussed. The principle has at any rate the advantage of restricting the issue essentially to definite and calculable quantities. It brings about, however, the peculiar results noted in our numerical example, namely, that a seemingly greater injury not infrequently is associated with a lesser award. Where a breadwinner is actually killed, the computed loss is measured in terms of his net future earnings. But if he is totally incapacitated though he retains his life, there is added to the loss of his net future earnings the expenditure incurred either by his family or by the state in maintaining a non-producer for the rest of his life. This is why the new table gives in some instances more favorable values than the one published in June.

Our whole purpose here is to place the adjudication of awards on a scientific basis; this means that we must take account only of the measurable economic values involved and not any sentimental or other unmeasurable considerations. Fortunately the trend of judiciary procedure is also in the direction of this principle.

THE HEALTH PROSPECTS OF THE AMERICAN NEGRO

The doleful prophecy of those who, thirty or more years ago, predicted the practical extinction of the American negro because of his extremely high deathrate has been entirely discredited. On the contrary there has been a steady improvement in general health conditions among this race during recent years; and there is very good ground for optimism that the end of the present century will see an increase of about three and one-half million negroes bringing their number in the United States to approximately fourteen and one-half millions by the year 2000.

These are important conclusions reached by Dr. LOUIS I. DUBLIN, Statistician of the Metropolitan Life Insurance Company, in an article in the September number of *The American Mercury* under the caption "Life, Death, and the Negro."

Reviewing the demographic story of the race since the first boat load of African slaves was landed at Jamestown in 1619, Dr. DUBLIN points out that about 25,000 negroes were brought in during the seventeenth century; about 100,000 more during the first half of the eighteenth; and that, although exact figures are not obtainable, about 200,000 negro slaves had been brought in prior to the establishment of American independence. The survivors and descendants of these numbered over one-half millon in 1776, and the negro population has since increased continuously until, in 1920, the

Census figures showed it to have reached ten and one-half millions, or 9.9 per cent. of the total population.

Discussing the great fertility of the negro race, Dr. DUBLIN points out that it is and always has been the most prolific of all the native stocks. Always subject to a relatively high deathrate, the excess of births over deaths was still not less than 20 per 1,000 population per annum in the slavery period, and in many years may have reached 25. Since the slavery period the negro birth rate has always exceeded that of the whites.*

As to mortality, which is the other item affecting natural increase, the negro deathrate has always been largely in excess of that for the whites. The development of modern sanitation and public health work, however, has benefited the colored as well as the white population. One result is that the negro, who still lives, in many areas, under what are still rather primitive conditions of sanitation, is today enjoying an expectation of life of about forty-six years, which is about equal to that of white Americans only 30 years ago. From a deathrate of 35 to 40 per 1,000 in Reconstruction days, the negro mortality is now only about 17 per 1,000—or about the same as that for a number of European countries before the World War. When once the negro male reaches the age of 50 his expectation of life is today under one year less than that of the white male, and the life expectancy of the colored woman is a little over two years less.

Pointing to the current mortality experience of more than 2,000,000 negroes insured in the Industrial Department of the Metropolitan Life Insurance Company, the author shows that in the short period of sixteen years the deathrate declined from 17.5 per 1,000 in 1911, to 14.6 in 1926—a drop of 16.3 per cent. He points out that this accomplishment is all the more striking because the insured negroes are almost entirely an urban group and that health conditions among city negroes have always been less satisfactory than on the farms. Reviewing the items which have contributed most to the reduction in the negro deathrate, Dr. DUBLIN refers especially to tuberculosis, for which a drop of 44 per cent. was recorded between 1911 and 1926. Out of every 100,000 living colored persons only 235 died in 1926 as compared with 418 in 1911. Despite this reduction one out of every six colored persons dies of tuberculosis—even at the present time. Marked improvement has taken place in infant and child mortality, reductions ranging from 31 per cent. for measles to more than 50 per cent. for diarrheal

*The latest available figure relates to the year 1924 in which the birth rate for the colored was 27.4 per 1,000 as compared with 22.2 for the whites.

complaints, within sixteen years. Large decreases in the deathrate from typhoid fever and pneumonia are cited as best evidencing the improvement in sanitary conditions among the colored people.

There are, it is true, certain unfavorable features such as the high deathrate from the chronic degenerative diseases and from cancer, together with the very great prevalence of syphilitic infection among the colored people.

Dr. DUBLIN concludes that, in general, the energies of the American negro will be best rewarded by staying in the South and on the farms, where environmental conditions are best suited to serve his interests. He sees the negro playing an increasingly important and worthy part in American affairs and regards his achievement as the greatest experiment in racial adjustment ever undertaken by man and as a most encouraging and gratifying episode in our national life.

HEALTH RECORD FOR JULY, 1927

July, with a deathrate of 7.8 per 1,000 among approximately eighteen millions of the American and Canadian industrial population, was the seventh successive month of 1927 to register improved health conditions over the corresponding month of 1926. The above deathrate may be compared with 8.4 for July of last year. The decline amounted to 7.1 per cent. The usual seasonal drop from the deathrate of the preceding month was observed.

Each of the diseases of major numerical importance registered declines as compared with July of last year. The per cent. drop for tuberculosis was 9.1; cancer, 6.4; cerebral hemorrhage, 4.3; heart diseases, 6.3; pneumonia, 11.1; and Bright's disease, 2.9.

Among the diseases listed in the table on page 10, the only ones to show higher deathrates than recorded in July, 1926, are typhoid fever, diphtheria, diabetes and respiratory conditions other than pneumonia. The increased mortality from typhoid is due, in large part, as in preceding months, to deaths occurring in the Province of Quebec. More than one-third of the seventy-nine deaths from typhoid during July were reported from that province. Diphtheria, as in every month of 1927, registered a higher deathrate than in the corresponding month of last year. We again wish to caution readers, as we have done in former BULLETINS, against misinterpretation of the significance of the slight rise in the diphtheria deathrate during the current year. The diphtheria situation, by and large, is excellent in the United States and Canada, and the mortality is lower than in any prior year save 1926. Nineteen twenty-seven simply bids

fair to mark a check in the improvement that has been observed coincident with the increasing use of toxin-antitoxin immunization. The reduction in the diphtheria deathrate has been so marked during recent years that it was almost inevitable that a time would come when either a retardation in the velocity of the drop would be observed or a new minimum would be registered, over which further improvement might not be recorded for some time. Such a check occurred last year with tuberculosis; but this has been followed, in 1927, by a more pronounced drop than ever. The increase for diabetes in July was small and of little significance.

One of the most gratifying items in the health record for the month is the remarkably low deathrate for diarrheal complaints, 24.5 per 100,000. This is by far the lowest July figure registered for these diseases since the Company began to insure infants, among whom the great majority of the deaths from these causes occurs.

The month's record for deaths by violence, however, compares unfavorably with that for July of last year. Suicides, accidents and automobile fatalities were all more numerous; the homicide deathrate showed a small decline.

The general deathrate for the large cities of the United States in July was 13.8 per 1,000 estimated population which was somewhat higher than was recorded either in June, 1927, or in July, 1926. More cases of poliomyelitis and typhoid fever were reported than in June, with lower incidence of diphtheria, influenza, measles, scarlet fever and smallpox. The diseases which showed increased prevalence as compared with June, 1926, were diphtheria, poliomyelitis, smallpox and typhoid fever; there were fewer cases of influenza, measles and scarlet fever. There was a reduction of 800 cases of diphtheria in forty reporting states during the first three weeks of July as compared with the same weeks of June. The most outstanding declines were in Missouri and Wisconsin. Reports of measles cases in these three weeks dropped from 24,859 in June to 10,560 in July and scarlet fever cases from 7,853 to 4,527.

Poliomyelitis was much more prominent in the July morbidity reports, with 215 cases for the first three weeks as compared with 83 during the same weeks of June. The California State Board of Health received reports of 82 cases during the first two weeks of July as against 74 for the entire month of June. In New Mexico, between the last week of June and July 19th thirty-four cases with five deaths were reported to the State Department of Health. The usual seasonal increase in typhoid fever cases is being observed.

The following table shows the mortality among the Industrial policyholders for July, 1927; June, 1927; July, 1926 and the year 1926.

METROPOLITAN LIFE INSURANCE COMPANY

Deathrates* per 100,000 for Principal Causes, Premium-paying Business in Industrial Department (Annual Basis)

MONTHS OF JULY, 1927; JUNE, 1927, AND OF JULY, 1926

CAUSES OF DEATH	RATE PER 100,000 LIVES EXPOSED*			
	July, 1927	June, 1927	July, 1926	Year 1926
TOTAL—ALL CAUSES	780.0	923.2	835.5	945.6
Typhoid fever	5.1	6.1	3.2	4.2
Measles	2.7	5.7	6.7	10.2
Scarlet fever	2.1	3.5	2.6	3.4
Whooping cough	6.1	6.9	8.8	9.6
Diphtheria	7.8	10.4	5.9	9.7
Influenza	6.2	12.0	9.4	31.1
Tuberculosis (All forms)	90.5	99.8	99.6	99.0
Tuberculosis of resp'y system	78.8	80.9	85.7	86.7
Cancer	65.6	74.0	70.1	73.7
Diabetes mellitus	13.7	16.9	13.3	16.7
Cerebral hemorrhage	46.8	57.5	48.9	55.6
Organic diseases of heart	111.5	138.7	119.0	134.3
Pneumonia (All forms)	43.4	69.7	48.8	98.2
Other respiratory diseases	12.1	16.7	10.8	13.0
Diarrhea and enteritis	24.5	22.0	31.7	29.8
Bright's disease (Chronic nephritis)	60.3	75.5	62.1	73.5
Puerperal state	13.4	16.3	14.7	15.3
Suicides	7.9	8.6	6.9	7.7
Homicides	6.7	7.6	7.6	7.0
Other external causes (excluding suicides and homicides)	76.8	69.0	72.1	62.3
Traumatism by automobiles	19.7	19.5	17.5	16.8
All other causes	177.0	206.3	193.4	191.0

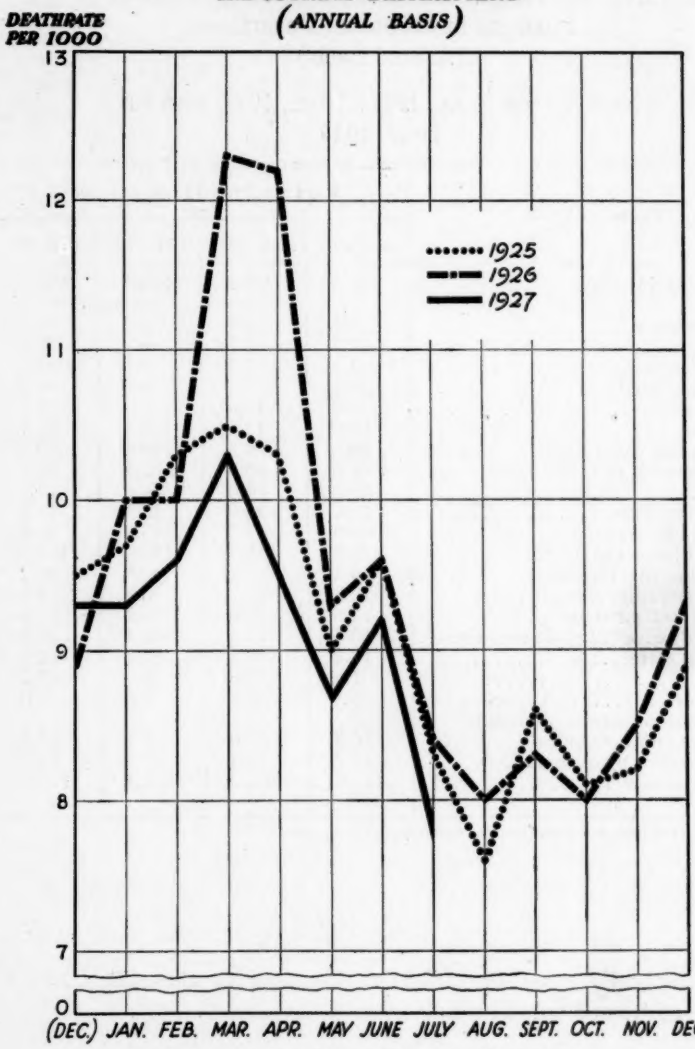
*All figures include infants insured under one year of age.

Correspondence on the subjects discussed in these BULLETINS may be addressed to: The Editor,

STATISTICAL BULLETIN,
Metropolitan Life Insurance Company,
1 Madison Avenue, New York City.

Deathrates from All Causes

METROPOLITAN LIFE INSURANCE CO.
INDUSTRIAL DEPARTMENT
(ANNUAL BASIS)



	(DEC.)	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1925	9.7	10.3	10.5	10.3	9.0	9.6	8.3	7.6	8.6	8.1	8.2	8.9
1926	10.0	10.0	12.3	12.2	9.3	9.6	8.4	8.0	8.3	8.0	8.5	9.3
1927	9.3	9.6	10.3	9.5	8.7	9.2	7.8					

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